
SPACEX

1
00:01:23,429 --> 00:01:04,960
[Music]

2
00:01:29,990 --> 00:01:26,950
it's sunday 19th of january and we are

3
00:01:33,990 --> 00:01:30,000
awaiting spacex's launch escape test in

4
00:01:36,069 --> 00:01:34,000
just under 17 minutes and eight seconds

5
00:01:37,830 --> 00:01:36,079
the test today is to demonstrate the

6
00:01:38,950 --> 00:01:37,840
effectiveness of our launch escape

7
00:01:41,030 --> 00:01:38,960
system

8
00:01:45,350 --> 00:01:41,040
now we are currently go for launch from

9
00:01:48,230 --> 00:01:45,360
pad 39a at kennedy space center at 10 30

10
00:01:50,550 --> 00:01:48,240
a.m eastern standard time

11
00:01:52,469 --> 00:01:50,560
thanks for joining us i'm john isbecker

12
00:01:55,190 --> 00:01:52,479
falcon principal integration engineer

13
00:01:57,749 --> 00:01:55,200

here at spacex headquarters in hawthorne

14
00:02:00,069 --> 00:01:57,759
california and i'm marie lewis with nasa

15
00:02:01,990 --> 00:02:00,079
public affairs the purpose of today's

16
00:02:04,630 --> 00:02:02,000
test is to demonstrate crew dragon's

17
00:02:07,030 --> 00:02:04,640
ability to safely fly astronauts away

18
00:02:10,070 --> 00:02:07,040
from danger and separate from the falcon

19
00:02:12,390 --> 00:02:10,080
9 rocket during an in-flight emergency

20
00:02:14,869 --> 00:02:12,400
spacex's launch escape system is a first

21
00:02:17,510 --> 00:02:14,879
of its kind with its eight super draco

22
00:02:19,990 --> 00:02:17,520
thrusters built directly into dragon to

23
00:02:21,990 --> 00:02:20,000
push the spacecraft away from falcon 9

24
00:02:24,790 --> 00:02:22,000
in case of an emergency you can think of

25
00:02:26,949 --> 00:02:24,800
it as a rocket on top of a rocket

26
00:02:29,589 --> 00:02:26,959
now in order to test our launch escape

27
00:02:31,430 --> 00:02:29,599
system which is integral to the dragon

28
00:02:33,670 --> 00:02:31,440
spacecraft you see in front of you on

29
00:02:36,470 --> 00:02:33,680
the video we will be simulating an

30
00:02:38,630 --> 00:02:36,480
emergency with falcon 9 at about 84

31
00:02:41,670 --> 00:02:38,640
seconds into flight this could be a few

32
00:02:43,509 --> 00:02:41,680
seconds early or late as dragon waits

33
00:02:46,790 --> 00:02:43,519
for falcon 9 to reach a specific

34
00:02:48,949 --> 00:02:46,800
velocity before initiating the escape

35
00:02:51,670 --> 00:02:48,959
now before dragon separates and fires

36
00:02:53,910 --> 00:02:51,680
its super draco engines it will command

37
00:02:56,070 --> 00:02:53,920
falcon 9 to shut down its engines as

38
00:02:58,390 --> 00:02:56,080

part of the escape sequence because

39
00:03:00,149 --> 00:02:58,400
falcon 9 is then unpowered we are

40
00:03:02,070 --> 00:03:00,159
expecting the launch vehicle to fully

41
00:03:04,070 --> 00:03:02,080
break up at some point which should

42
00:03:05,910 --> 00:03:04,080
create some particularly interesting

43
00:03:07,589 --> 00:03:05,920
views for sure

44
00:03:09,110 --> 00:03:07,599
now it's not every day you get to see

45
00:03:10,949 --> 00:03:09,120
something like that so we're going to do

46
00:03:13,589 --> 00:03:10,959
our best to bring it to you live as it

47
00:03:15,589 --> 00:03:13,599
happens but a reminder with the weather

48
00:03:17,430 --> 00:03:15,599
in the clouds we're going to try to find

49
00:03:19,670 --> 00:03:17,440
the views that are best

50
00:03:21,190 --> 00:03:19,680
and to be very clear this is all part of

51
00:03:23,270 --> 00:03:21,200
today's test

52
00:03:25,430 --> 00:03:23,280
within the context of this test the

53
00:03:27,509 --> 00:03:25,440
views that you will see will allow us to

54
00:03:29,509 --> 00:03:27,519
validate the effectiveness of our launch

55
00:03:31,509 --> 00:03:29,519
escape system and we're hoping for some

56
00:03:34,149 --> 00:03:31,519
very exciting views but the whole point

57
00:03:36,149 --> 00:03:34,159
of the test today is the next step in

58
00:03:38,949 --> 00:03:36,159
our multi-year efforts to fly astronauts

59
00:03:40,949 --> 00:03:38,959
again from u.s soil it's part of nasa's

60
00:03:43,030 --> 00:03:40,959
commercial crew program and it's a

61
00:03:45,270 --> 00:03:43,040
partnership we have with spacex and

62
00:03:46,949 --> 00:03:45,280
boeing but this is not the first time we

63
00:03:49,270 --> 00:03:46,959

are putting dragon's launch escape

64
00:03:52,470 --> 00:03:49,280
system to the test if you remember back

65
00:03:54,710 --> 00:03:52,480
in 2015 spacex's paddleboard test

66
00:03:56,869 --> 00:03:54,720
demonstrated dragon's ability to escape

67
00:03:59,910 --> 00:03:56,879
from the falcon 9 in the event of an

68
00:04:01,830 --> 00:03:59,920
emergency on the pad before liftoff and

69
00:04:03,990 --> 00:04:01,840
the super dracos in the launch escape

70
00:04:06,229 --> 00:04:04,000
system on today's dragon capsule you see

71
00:04:08,070 --> 00:04:06,239
there were successfully static fired

72
00:04:09,830 --> 00:04:08,080
this past november

73
00:04:12,869 --> 00:04:09,840
and in addition to the tests that you

74
00:04:15,270 --> 00:04:12,879
just mentioned spacex also flew a full

75
00:04:17,030 --> 00:04:15,280
uncrewed demonstration mission to and

76
00:04:19,509 --> 00:04:17,040
from the international space station

77
00:04:21,509 --> 00:04:19,519
last year with its crew dragon vehicle

78
00:04:24,230 --> 00:04:21,519
now this was a full end-to-end test of

79
00:04:26,550 --> 00:04:24,240
the entire crew dragon system validating

80
00:04:28,950 --> 00:04:26,560
that our upgraded crew dragon spacecraft

81
00:04:31,510 --> 00:04:28,960
could safely dock with the space station

82
00:04:34,710 --> 00:04:31,520
and in addition our team has conducted

83
00:04:37,110 --> 00:04:34,720
over 700 tests on just the super draco

84
00:04:38,950 --> 00:04:37,120
system alone really looking forward to

85
00:04:41,510 --> 00:04:38,960
seeing those perform in today's flight

86
00:04:43,990 --> 00:04:41,520
absolutely and if all goes well today

87
00:04:45,590 --> 00:04:44,000
the next big milestone will be to launch

88
00:04:47,670 --> 00:04:45,600

astronauts as we mentioned to the

89
00:04:50,390 --> 00:04:47,680
international space station that's part

90
00:04:52,310 --> 00:04:50,400
of what we call demo 2 or demonstration

91
00:04:54,150 --> 00:04:52,320
mission 2.

92
00:04:56,790 --> 00:04:54,160
now we're currently just inside of t

93
00:04:59,189 --> 00:04:56,800
minus 13 minutes and 45 seconds and

94
00:05:00,950 --> 00:04:59,199
counting down now weather's been a watch

95
00:05:02,870 --> 00:05:00,960
item the last couple of days with rough

96
00:05:05,430 --> 00:05:02,880
seas sustained winds in the recovery

97
00:05:07,749 --> 00:05:05,440
area we had to scrub yesterday we're

98
00:05:09,990 --> 00:05:07,759
also still listening they're evaluating

99
00:05:11,990 --> 00:05:10,000
constantly the weather in the splashdown

100
00:05:14,790 --> 00:05:12,000
area right now as we're doing the

101
00:05:16,790 --> 00:05:14,800
webcast now we do have a six hour window

102
00:05:18,870 --> 00:05:16,800
today in case we need to wait for better

103
00:05:20,710 --> 00:05:18,880
weather or less cloud cover we've

104
00:05:23,189 --> 00:05:20,720
obviously used two and a half hours of

105
00:05:25,029 --> 00:05:23,199
it already but right now we think this

106
00:05:26,870 --> 00:05:25,039
is our best opportunity

107
00:05:29,270 --> 00:05:26,880
now if the weather does not cooperate

108
00:05:31,029 --> 00:05:29,280
today we are preserving tomorrow as a

109
00:05:33,110 --> 00:05:31,039
potential backup

110
00:05:35,590 --> 00:05:33,120
now as a reminder again this is not a

111
00:05:37,749 --> 00:05:35,600
typical launch we're purposely testing

112
00:05:40,070 --> 00:05:37,759
dragon's escape system under the most

113
00:05:42,150 --> 00:05:40,080

extreme conditions so while we want

114
00:05:44,870 --> 00:05:42,160
everything to go right today we are

115
00:05:46,629 --> 00:05:44,880
prepared if everything goes wrong and if

116
00:05:48,790 --> 00:05:46,639
if that does happen that's the whole

117
00:05:50,550 --> 00:05:48,800
point this is exactly why we test we

118
00:05:52,629 --> 00:05:50,560
want to see if there's any potential

119
00:05:54,390 --> 00:05:52,639
issues and we want them to happen now so

120
00:05:56,550 --> 00:05:54,400
we can address those before we put

121
00:05:59,189 --> 00:05:56,560
astronauts on board and speaking of

122
00:06:00,870 --> 00:05:59,199
astronauts we have nasa's daryl nail at

123
00:06:02,550 --> 00:06:00,880
kennedy space center in florida that's

124
00:06:04,870 --> 00:06:02,560
where the test is taking place this

125
00:06:06,870 --> 00:06:04,880
morning and he has more about what those

126
00:06:09,110 --> 00:06:06,880
very first astronauts assigned to fly

127
00:06:11,990 --> 00:06:09,120
crew dragon will be paying special

128
00:06:13,670 --> 00:06:12,000
attention to this morning daryl

129
00:06:15,029 --> 00:06:13,680
good morning john marie it's a pretty

130
00:06:16,629 --> 00:06:15,039
nice day here at the kennedy space

131
00:06:18,469 --> 00:06:16,639
center in florida you can see behind us

132
00:06:19,909 --> 00:06:18,479
here on the lawn some of the media have

133
00:06:21,670 --> 00:06:19,919
gathered to shoot this launch and of

134
00:06:24,390 --> 00:06:21,680
course the countdown clock the iconic

135
00:06:26,309 --> 00:06:24,400
one they're counting 12 minutes until

136
00:06:28,710 --> 00:06:26,319
launch as you mentioned the first crew

137
00:06:30,629 --> 00:06:28,720
members assigned to fly crew dragon are

138
00:06:32,150 --> 00:06:30,639

nasa astronauts doug hurley and bob

139
00:06:34,629 --> 00:06:32,160
bankin and they have the most you could

140
00:06:36,469 --> 00:06:34,639
say invested in the outcome of this test

141
00:06:39,189 --> 00:06:36,479
flight right now they are just a few

142
00:06:40,950 --> 00:06:39,199
miles away from launch pad 39a which is

143
00:06:43,110 --> 00:06:40,960
just behind my left shoulder here

144
00:06:44,790 --> 00:06:43,120
they're in the spacex firing room inside

145
00:06:46,710 --> 00:06:44,800
the launch control center where they

146
00:06:49,029 --> 00:06:46,720
will closely monitor today's flight

147
00:06:50,950 --> 00:06:49,039
abort test now right now they've been

148
00:06:53,110 --> 00:06:50,960
training up until this point training

149
00:06:55,189 --> 00:06:53,120
hard with nasa and spacex so they can

150
00:06:57,430 --> 00:06:55,199
understand every aspect of dragon's

151
00:06:59,189 --> 00:06:57,440
systems their spacesuits and how to

152
00:07:01,830 --> 00:06:59,199
respond in a variety of potential

153
00:07:03,749 --> 00:07:01,840
emergency scenarios including an escape

154
00:07:05,909 --> 00:07:03,759
from a falcon 9 rocket in the middle of

155
00:07:07,909 --> 00:07:05,919
flight the end result of that could be

156
00:07:10,550 --> 00:07:07,919
an early splashdown in the atlantic

157
00:07:12,870 --> 00:07:10,560
ocean now both astronauts told us what

158
00:07:15,830 --> 00:07:12,880
they will specifically be looking for

159
00:07:17,670 --> 00:07:15,840
during today's test flight

160
00:07:19,670 --> 00:07:17,680
think both of us are really excited that

161
00:07:21,510 --> 00:07:19,680
the inflate abort test is about to

162
00:07:23,589 --> 00:07:21,520
happen you know we kind of view that as

163
00:07:25,670 --> 00:07:23,599

the graduation exercise like a lot of

164
00:07:26,950 --> 00:07:25,680
folks do on the nasa side to make sure

165
00:07:28,710 --> 00:07:26,960
that we're really confident that we've

166
00:07:30,230 --> 00:07:28,720
got a good plan and good procedures in

167
00:07:32,390 --> 00:07:30,240
place for pulling that mission off and

168
00:07:34,309 --> 00:07:32,400
so i'm excited that we're this far and i

169
00:07:36,309 --> 00:07:34,319
know once it's behind us you know we'll

170
00:07:39,510 --> 00:07:36,319
be the the prime

171
00:07:41,110 --> 00:07:39,520
falcon 9 crew dragon crew what we want

172
00:07:44,230 --> 00:07:41,120
to see from this test is just an

173
00:07:46,230 --> 00:07:44,240
end-to-end success so you know another

174
00:07:49,189 --> 00:07:46,240
successful launch of the falcon 9 and

175
00:07:50,469 --> 00:07:49,199
then to see the super draco's work i

176
00:07:52,309 --> 00:07:50,479
think that's a really good point i think

177
00:07:54,309 --> 00:07:52,319
getting the nasa team and the spacex

178
00:07:55,830 --> 00:07:54,319
team on the same page kind of going

179
00:07:58,150 --> 00:07:55,840
forward and kind of walking through all

180
00:07:59,589 --> 00:07:58,160
the decisions that you have to make for

181
00:08:01,189 --> 00:07:59,599
getting ready for this flight i think is

182
00:08:03,110 --> 00:08:01,199
a is a big milestone as well because

183
00:08:05,430 --> 00:08:03,120
it's the it's the last launch associated

184
00:08:07,350 --> 00:08:05,440
with us before we ride that rocket

185
00:08:10,150 --> 00:08:07,360
yeah that's very true it is it's kind of

186
00:08:12,710 --> 00:08:10,160
the final exam so it's there's a lot

187
00:08:14,629 --> 00:08:12,720
riding on it but also i think it's a

188
00:08:17,110 --> 00:08:14,639

culmination of a ton of work from

189
00:08:18,390 --> 00:08:17,120
everybody in nasa and spacex to get to

190
00:08:20,070 --> 00:08:18,400
this point

191
00:08:22,150 --> 00:08:20,080
i'm just really proud that the team is

192
00:08:23,909 --> 00:08:22,160
trying to pull off something so

193
00:08:25,990 --> 00:08:23,919
critical from a safety perspective you

194
00:08:27,909 --> 00:08:26,000
know if we needed to escape off of the

195
00:08:30,309 --> 00:08:27,919
rocket to have that system demoed before

196
00:08:31,749 --> 00:08:30,319
we would actually use it is pretty cool

197
00:08:33,110 --> 00:08:31,759
that folks are making the investment to

198
00:08:35,990 --> 00:08:33,120
make that happen

199
00:08:38,310 --> 00:08:36,000
we feel really excited about kind of the

200
00:08:40,550 --> 00:08:38,320
progress that the spacex and nasa have

201
00:08:42,070 --> 00:08:40,560
made to this point and this kind of

202
00:08:44,550 --> 00:08:42,080
shows us that we're getting really close

203
00:08:46,470 --> 00:08:44,560
to our flight so to see all these

204
00:08:48,710 --> 00:08:46,480
capabilities all put together all the

205
00:08:51,590 --> 00:08:48,720
teams together and to be able to launch

206
00:08:56,550 --> 00:08:51,600
this vehicle it's just a huge boost of

207
00:09:00,389 --> 00:08:58,470
now there's an interesting human side to

208
00:09:02,790 --> 00:09:00,399
doug and bob's story they're not just

209
00:09:04,470 --> 00:09:02,800
crew mates they're also friends who have

210
00:09:06,550 --> 00:09:04,480
spent a lot of time together over the

211
00:09:09,190 --> 00:09:06,560
years both graduated from the same

212
00:09:11,030 --> 00:09:09,200
astronaut training class in 2000 both

213
00:09:13,110 --> 00:09:11,040

flew on the space shuttle both are

214
00:09:14,790 --> 00:09:13,120
married to astronauts and they were in

215
00:09:17,670 --> 00:09:14,800
each other's wedding

216
00:09:19,829 --> 00:09:17,680
john marie back to you

217
00:09:22,470 --> 00:09:19,839
all right thanks daryl you're taking a

218
00:09:25,110 --> 00:09:22,480
live look now this is inside spacex's

219
00:09:26,949 --> 00:09:25,120
firing room four that's where bob and

220
00:09:29,030 --> 00:09:26,959
doug are sitting today along with the

221
00:09:31,269 --> 00:09:29,040
nasa and spacex teams

222
00:09:33,269 --> 00:09:31,279
watching following along today's test

223
00:09:35,829 --> 00:09:33,279
and this past friday they completed what

224
00:09:37,910 --> 00:09:35,839
we refer to internally as a dry dress

225
00:09:39,829 --> 00:09:37,920
rehearsal we saw some video of that

226
00:09:41,670 --> 00:09:39,839
during daryl's segment this is where the

227
00:09:44,230 --> 00:09:41,680
astronauts along with the spacex and

228
00:09:45,910 --> 00:09:44,240
nasa teams walk through those steps that

229
00:09:48,150 --> 00:09:45,920
they'll take before they get on board

230
00:09:49,750 --> 00:09:48,160
for demo two we saw them suit up

231
00:09:51,110 --> 00:09:49,760
and that is really exciting stuff

232
00:09:53,350 --> 00:09:51,120
especially that was the first time we

233
00:09:55,910 --> 00:09:53,360
saw them suited up walking out of the uh

234
00:09:57,670 --> 00:09:55,920
the astronaut uh suit-up room and so

235
00:09:59,910 --> 00:09:57,680
really looking forward to doing that uh

236
00:10:01,910 --> 00:09:59,920
for demo too let's take a quick look now

237
00:10:04,710 --> 00:10:01,920
at crew dragon

238
00:10:06,230 --> 00:10:04,720

it stands almost 27 feet tall from the

239
00:10:08,790 --> 00:10:06,240
bottom of the trunk to the top of the

240
00:10:11,190 --> 00:10:08,800
nose cone and crew dragon is composed of

241
00:10:13,190 --> 00:10:11,200
two main elements the capsule that top

242
00:10:15,350 --> 00:10:13,200
portion is designed to hold crew and

243
00:10:17,190 --> 00:10:15,360
pressurized cargo and it has an

244
00:10:18,550 --> 00:10:17,200
unpressurized section known as the trunk

245
00:10:20,550 --> 00:10:18,560
that's down below

246
00:10:22,630 --> 00:10:20,560
for today's test much of the exciting

247
00:10:24,630 --> 00:10:22,640
work is going to be done by the dragons

248
00:10:27,430 --> 00:10:24,640
eight super draco engines we talked

249
00:10:29,509 --> 00:10:27,440
about built directly into the capsule

250
00:10:31,269 --> 00:10:29,519
now to give you a sense of power

251
00:10:33,590 --> 00:10:31,279
when fired together the eight super

252
00:10:36,230 --> 00:10:33,600
dracos can move the spacecraft a half a

253
00:10:38,069 --> 00:10:36,240
mile in seven and a half seconds so from

254
00:10:40,509 --> 00:10:38,079
a standing start the super dracos

255
00:10:43,750 --> 00:10:40,519
accelerate the spacecraft to a speed of

256
00:10:45,430 --> 00:10:43,760
436 miles per hour that's a lot faster

257
00:10:47,110 --> 00:10:45,440
than a catapult launch from an aircraft

258
00:10:49,509 --> 00:10:47,120
carrier i know and it's it's hard to

259
00:10:50,470 --> 00:10:49,519
imagine just moving that fast i i was

260
00:10:52,230 --> 00:10:50,480
trying to

261
00:10:53,910 --> 00:10:52,240
get a feel for it so i did a little math

262
00:10:56,310 --> 00:10:53,920
and it's about three times faster than

263
00:10:57,670 --> 00:10:56,320

takeoff on a commercial plane if you can

264
00:10:59,670 --> 00:10:57,680
imagine that

265
00:11:02,230 --> 00:10:59,680
in fact one jetpack assembly which

266
00:11:04,949 --> 00:11:02,240
consists of two super dracos produces

267
00:11:06,949 --> 00:11:04,959
more thrust than an f-16 fighter jet at

268
00:11:09,269 --> 00:11:06,959
full afterburn so john if you were to

269
00:11:10,870 --> 00:11:09,279
put that uh strap that to your back you

270
00:11:12,310 --> 00:11:10,880
would break the sound barrier in under

271
00:11:14,069 --> 00:11:12,320
half a second not sure you'd want to

272
00:11:15,829 --> 00:11:14,079
volunteer for that i'd probably break

273
00:11:17,829 --> 00:11:15,839
something else too

274
00:11:20,150 --> 00:11:17,839
so that gets us through the major test

275
00:11:21,430 --> 00:11:20,160
objective today dragons separating from

276
00:11:23,110 --> 00:11:21,440
the falcon

277
00:11:25,030 --> 00:11:23,120
several minutes later we will deploy

278
00:11:27,430 --> 00:11:25,040
drogue parachutes followed by the four

279
00:11:29,430 --> 00:11:27,440
large main parachutes you'll see the

280
00:11:32,389 --> 00:11:29,440
main parachutes partially open at first

281
00:11:33,910 --> 00:11:32,399
if we've got video then fully open these

282
00:11:36,150 --> 00:11:33,920
will then control the descent of the

283
00:11:38,310 --> 00:11:36,160
dragon capsule softly into the atlantic

284
00:11:40,470 --> 00:11:38,320
ocean and while that vehicle that you

285
00:11:42,630 --> 00:11:40,480
see on the pad looks like a typical crew

286
00:11:44,230 --> 00:11:42,640
dragon spacecraft from the outside

287
00:11:46,069 --> 00:11:44,240
if you had a look inside you'll see that

288
00:11:47,670 --> 00:11:46,079

the interiors have been stripped down

289
00:11:48,710 --> 00:11:47,680
and there it is we do have a look inside

290
00:11:51,030 --> 00:11:48,720
for you

291
00:11:53,030 --> 00:11:51,040
the cabin has no interior panels except

292
00:11:55,670 --> 00:11:53,040
for one on the ceiling and there's no

293
00:11:57,509 --> 00:11:55,680
control panel in there for this test

294
00:11:59,110 --> 00:11:57,519
dragons also outfitted with two seats

295
00:12:01,190 --> 00:11:59,120
that you see there and sitting inside

296
00:12:02,870 --> 00:12:01,200
those seats we have two anthropomorphic

297
00:12:05,110 --> 00:12:02,880
test devices

298
00:12:06,870 --> 00:12:05,120
what no cool acronym i'll just call them

299
00:12:08,230 --> 00:12:06,880
test devices we have enough acronyms

300
00:12:10,310 --> 00:12:08,240
john

301
00:12:12,629 --> 00:12:10,320
while the test devices do not have any

302
00:12:14,870 --> 00:12:12,639
sensors on them today the seats they're

303
00:12:16,550 --> 00:12:14,880
sitting on are instrumented we'll be

304
00:12:18,150 --> 00:12:16,560
able to measure the loads on the seat to

305
00:12:20,949 --> 00:12:18,160
ensure that there are no unexpected

306
00:12:22,710 --> 00:12:20,959
issues in this dressing test case we've

307
00:12:24,790 --> 00:12:22,720
also made some other modifications to

308
00:12:26,870 --> 00:12:24,800
the dragon interior for today's test

309
00:12:28,949 --> 00:12:26,880
that's right there will be three cargo

310
00:12:31,829 --> 00:12:28,959
racks with some assortment of ballast or

311
00:12:33,509 --> 00:12:31,839
cargo bags and no floor now below where

312
00:12:35,829 --> 00:12:33,519
the floor would be there will be an

313
00:12:37,509 --> 00:12:35,839

assortment of mass simulators in place

314
00:12:39,110 --> 00:12:37,519
of the life support components and some

315
00:12:42,069 --> 00:12:39,120
other equipment that's down there when

316
00:12:44,550 --> 00:12:42,079
we have crew aboard

317
00:12:46,310 --> 00:12:44,560
now the test today will look a lot like

318
00:12:48,710 --> 00:12:46,320
a normal falcon launch for the first

319
00:12:51,509 --> 00:12:48,720
minute and a half we'll fly until falcon

320
00:12:54,389 --> 00:12:51,519
9 reaches a predetermined velocity this

321
00:12:56,310 --> 00:12:54,399
will occur about 84 seconds into flight

322
00:12:58,949 --> 00:12:56,320
and that happens at approximately 20

323
00:13:01,350 --> 00:12:58,959
kilometers up once we reach the required

324
00:13:02,710 --> 00:13:01,360
velocity dragon will then trigger and

325
00:13:04,389 --> 00:13:02,720
escape

326
00:13:06,310 --> 00:13:04,399
now as a reminder the ground is not

327
00:13:08,389 --> 00:13:06,320
commanding this abort it's up to the

328
00:13:10,230 --> 00:13:08,399
onboard computers to determine when to

329
00:13:11,750 --> 00:13:10,240
trigger the launch escape and do all the

330
00:13:13,430 --> 00:13:11,760
functions afterward

331
00:13:15,030 --> 00:13:13,440
once dragon does trigger the launch

332
00:13:17,590 --> 00:13:15,040
escape the first event will be

333
00:13:19,910 --> 00:13:17,600
commanding falcon 9 to shut down its

334
00:13:21,990 --> 00:13:19,920
nine merlin engines now as marie and i

335
00:13:24,710 --> 00:13:22,000
mentioned earlier dragon will then

336
00:13:26,629 --> 00:13:24,720
separate from the falcon using its eight

337
00:13:28,790 --> 00:13:26,639
super draco engines firing for about

338
00:13:30,870 --> 00:13:28,800

eight seconds that carries dragon

339
00:13:32,150 --> 00:13:30,880
capsule with the trunk up and away from

340
00:13:34,069 --> 00:13:32,160
falcon

341
00:13:37,350 --> 00:13:34,079
now once they finish firing the super

342
00:13:39,910 --> 00:13:37,360
dracos we coast we jettison the trunk at

343
00:13:41,350 --> 00:13:39,920
apogee we reorient the capsule to come

344
00:13:42,470 --> 00:13:41,360
back for entry into the earth's

345
00:13:44,710 --> 00:13:42,480
atmosphere

346
00:13:46,470 --> 00:13:44,720
we deploy about two minutes after apogee

347
00:13:48,949 --> 00:13:46,480
the drogue shoots and about a minute

348
00:13:51,829 --> 00:13:48,959
after that the four main parachutes will

349
00:13:54,710 --> 00:13:51,839
be released dragon will then splash down

350
00:13:57,189 --> 00:13:54,720
softly in the atlantic ocean about 35

351
00:13:59,350 --> 00:13:57,199
kilometers offshore

352
00:14:01,670 --> 00:13:59,360
now when dragon separates we no longer

353
00:14:03,990 --> 00:14:01,680
have that smooth aerodynamic shape on

354
00:14:05,990 --> 00:14:04,000
top of the rocket so the supersonic

355
00:14:07,910 --> 00:14:06,000
falcon is going to be exposed to strong

356
00:14:09,990 --> 00:14:07,920
aerodynamic forces in the upper

357
00:14:11,990 --> 00:14:10,000
atmosphere so we expect those

358
00:14:13,269 --> 00:14:12,000
aerodynamic forces will cause falcon to

359
00:14:15,030 --> 00:14:13,279
start to tumble

360
00:14:16,710 --> 00:14:15,040
our simulations show that the falcon

361
00:14:19,509 --> 00:14:16,720
will likely break apart due to the

362
00:14:21,590 --> 00:14:19,519
tumbling instead of having the destruct

363
00:14:22,710 --> 00:14:21,600

system triggered and destroying the

364
00:14:25,030 --> 00:14:22,720
rocket

365
00:14:26,870 --> 00:14:25,040
so now again this entire test will take

366
00:14:29,509 --> 00:14:26,880
less than 10 minutes from the time

367
00:14:32,069 --> 00:14:29,519
falcon 9 lifts off until dragon splashes

368
00:14:33,990 --> 00:14:32,079
down but marie once we splash down the

369
00:14:35,670 --> 00:14:34,000
works not over yet right it's just

370
00:14:37,509 --> 00:14:35,680
beginning for the recovery team we have

371
00:14:38,710 --> 00:14:37,519
a lot of things happening very rapidly

372
00:14:40,389 --> 00:14:38,720
in that first 10 minutes and the

373
00:14:42,870 --> 00:14:40,399
recovery operation takes quite a bit

374
00:14:45,509 --> 00:14:42,880
longer it'll be similar to the pad abort

375
00:14:47,750 --> 00:14:45,519
test but it will happen slightly farther

376
00:14:49,509 --> 00:14:47,760
down range in the atlantic ocean so

377
00:14:51,189 --> 00:14:49,519
after splashdown recovery teams will

378
00:14:53,030 --> 00:14:51,199
already be standing by for range

379
00:14:55,670 --> 00:14:53,040
approval to enter and clear that

380
00:14:57,910 --> 00:14:55,680
hazardous area and if all goes nominally

381
00:14:59,670 --> 00:14:57,920
spacex could have fully recovered dragon

382
00:15:02,550 --> 00:14:59,680
back onto its recovery ship

383
00:15:04,389 --> 00:15:02,560
approximately two hours after splashdown

384
00:15:06,310 --> 00:15:04,399
keep in mind though if this were to

385
00:15:08,470 --> 00:15:06,320
happen during an actual flight with crew

386
00:15:10,550 --> 00:15:08,480
on board rescuing them would be the

387
00:15:12,470 --> 00:15:10,560
number one objective of course and

388
00:15:15,030 --> 00:15:12,480

recovering dragon would be a secondary

389
00:15:17,110 --> 00:15:15,040
operation so if that were to happen an

390
00:15:19,030 --> 00:15:17,120
elite military rescue team would deploy

391
00:15:21,910 --> 00:15:19,040
at a moment's notice they're part of the

392
00:15:23,269 --> 00:15:21,920
u.s air force's detachment 3 or they

393
00:15:25,030 --> 00:15:23,279
have this really great nickname the

394
00:15:26,470 --> 00:15:25,040
guardian angels which is very

395
00:15:28,550 --> 00:15:26,480
appropriate they would jump from

396
00:15:29,829 --> 00:15:28,560
military aircraft there's a photo of

397
00:15:31,829 --> 00:15:29,839
that happening there where they would

398
00:15:33,749 --> 00:15:31,839
deploy their own parachutes to gently

399
00:15:35,749 --> 00:15:33,759
reach the water and from there they

400
00:15:37,749 --> 00:15:35,759
would help the crew out of the capsule

401
00:15:39,990 --> 00:15:37,759
and then onto a life raft to wait for a

402
00:15:41,990 --> 00:15:40,000
larger ship now this is not just any

403
00:15:43,430 --> 00:15:42,000
life raft there it has a cover that they

404
00:15:45,670 --> 00:15:43,440
can put over the top to protect them

405
00:15:48,150 --> 00:15:45,680
from the elements and it's also equipped

406
00:15:50,629 --> 00:15:48,160
with food water and medical supplies

407
00:15:52,710 --> 00:15:50,639
enough to last for days if needed this

408
00:15:54,949 --> 00:15:52,720
would be of course a worst case scenario

409
00:15:56,310 --> 00:15:54,959
it's one that we don't expect to happen

410
00:15:58,150 --> 00:15:56,320
but of course what do we do when we're

411
00:16:00,389 --> 00:15:58,160
preparing to fly crew we always plan for

412
00:16:02,230 --> 00:16:00,399
the worst so this is something that nasa

413
00:16:04,069 --> 00:16:02,240

spacex and the department of defense

414
00:16:06,069 --> 00:16:04,079
have rehearsed together over and over so

415
00:16:08,230 --> 00:16:06,079
that we're ready for anything

416
00:16:10,230 --> 00:16:08,240
and the spacex recovery team is also

417
00:16:12,230 --> 00:16:10,240
keeping an eye out for falcon 9 as we

418
00:16:14,310 --> 00:16:12,240
mentioned earlier falcon 9 is expected

419
00:16:16,230 --> 00:16:14,320
to break up over the water we've got a

420
00:16:18,310 --> 00:16:16,240
dedicated team of spacex recovery

421
00:16:20,310 --> 00:16:18,320
personnel who will be staged and ready

422
00:16:21,350 --> 00:16:20,320
to begin recovering debris shortly after

423
00:16:23,269 --> 00:16:21,360
breakup

424
00:16:25,670 --> 00:16:23,279
well the clocks kicking down rapidly

425
00:16:28,470 --> 00:16:25,680
we're just over t minus two minutes and

426
00:16:30,389 --> 00:16:28,480
14 seconds from liftoff you've seen the

427
00:16:32,790 --> 00:16:30,399
crew access arm it's back that was

428
00:16:35,189 --> 00:16:32,800
retracted away from dragon at t minus 42

429
00:16:37,110 --> 00:16:35,199
minutes a few minutes after that dragon

430
00:16:39,350 --> 00:16:37,120
launch escape system was armed just

431
00:16:41,269 --> 00:16:39,360
before we began loading propellant onto

432
00:16:43,430 --> 00:16:41,279
the falcon 9. so if an unplanned

433
00:16:45,350 --> 00:16:43,440
situation arose right now dragon would

434
00:16:47,269 --> 00:16:45,360
perform and escape

435
00:16:49,189 --> 00:16:47,279
now currently the engines are chilled in

436
00:16:51,749 --> 00:16:49,199
for launch on the falcon the dragon

437
00:16:53,590 --> 00:16:51,759
spacecraft is waiting for liftoff

438
00:16:55,990 --> 00:16:53,600

we have retracted and you can see in the

439
00:16:58,470 --> 00:16:56,000
video the strongback is moved away just

440
00:17:00,870 --> 00:16:58,480
about two degrees in readiness for

441
00:17:02,949 --> 00:17:00,880
liftoff we have also finished loading

442
00:17:05,189 --> 00:17:02,959
liquid oxygen onto both the stages so

443
00:17:07,110 --> 00:17:05,199
the falcon 9's just about ready the

444
00:17:09,510 --> 00:17:07,120
large white cloud you see coming off of

445
00:17:11,510 --> 00:17:09,520
the side we're venting down the pressure

446
00:17:14,549 --> 00:17:11,520
from the liquid oxygen supply lines in

447
00:17:17,270 --> 00:17:14,559
the strongback in preparation for launch

448
00:17:18,870 --> 00:17:17,280
last event you're going to hear start up

449
00:17:21,110 --> 00:17:18,880
at one minute when the computers take

450
00:17:21,990 --> 00:17:21,120
over and launch director go at 30

451
00:17:23,669 --> 00:17:22,000
seconds

452
00:17:25,750 --> 00:17:23,679
and we're coming right up on that in

453
00:17:28,630 --> 00:17:25,760
about 15 seconds now will be just a

454
00:17:30,070 --> 00:17:28,640
minute from liftoff and falcon 9 is as

455
00:17:32,630 --> 00:17:30,080
you just heard is moving into those

456
00:17:35,029 --> 00:17:32,640
final stages of the final countdown for

457
00:17:36,789 --> 00:17:35,039
the in-flight abort test today

458
00:17:37,990 --> 00:17:36,799
so far weather is looking okay we're

459
00:17:40,470 --> 00:17:38,000
hoping it's going to continue to

460
00:17:42,710 --> 00:17:40,480
cooperate and the range is green for

461
00:17:44,710 --> 00:17:42,720
launch now if for some reason we scrub

462
00:17:46,470 --> 00:17:44,720
today we will shift to our backup launch

463
00:17:48,470 --> 00:17:46,480

window which is tomorrow at the same

464
00:17:50,950 --> 00:17:48,480
time again this is just a test we're

465
00:17:52,310 --> 00:17:50,960
fully expecting falcon 9 to break up so

466
00:17:54,230 --> 00:17:52,320
don't be alarmed if you see that

467
00:17:56,549 --> 00:17:54,240
happening live and with that let's

468
00:18:06,789 --> 00:17:56,559
listen in now we're just 45 seconds from

469
00:18:24,549 --> 00:18:08,310
ftss armed

470
00:18:24,559 --> 00:18:29,830
minus 15 seconds

471
00:18:31,750 --> 00:18:30,789
ten

472
00:18:32,789 --> 00:18:31,760
nine

473
00:18:33,750 --> 00:18:32,799
eight

474
00:18:34,710 --> 00:18:33,760
seven

475
00:18:35,590 --> 00:18:34,720
six

476
00:18:36,630 --> 00:18:35,600
five

477
00:18:37,669 --> 00:18:36,640
four

478
00:18:38,549 --> 00:18:37,679
three

479
00:18:39,350 --> 00:18:38,559
two

480
00:18:43,350 --> 00:18:39,360
one

481
00:18:58,640 --> 00:18:43,360
zero ignition let's go simplify

482
00:19:10,630 --> 00:18:59,990
[Music]

483
00:19:15,990 --> 00:19:13,270
t plus 30 seconds falcon 9 with the crew

484
00:19:19,669 --> 00:19:16,000
dragon capsule is heading east from pad

485
00:19:21,990 --> 00:19:19,679
39a everything looking good right now

486
00:19:30,150 --> 00:19:22,000
as we get ready for max dynamic pressure

487
00:19:34,710 --> 00:19:32,870
everything continues to look good

488
00:19:37,110 --> 00:19:34,720

we are approaching the period of maximum

489
00:19:38,789 --> 00:19:37,120
dynamic pressure

490
00:19:40,789 --> 00:19:38,799
vehicle is supersonic and passing

491
00:19:42,710 --> 00:19:40,799
through maximum dynamic pressure you've

492
00:19:43,430 --> 00:19:42,720
heard we're supersonic we're through max

493
00:19:45,270 --> 00:19:43,440
q

494
00:19:48,310 --> 00:19:45,280
we're getting ready now to throttle the

495
00:19:50,630 --> 00:19:48,320
engines back up on the first stage

496
00:19:53,190 --> 00:19:50,640
stage one throttle up there's the call

497
00:19:56,310 --> 00:19:53,200
out okay the major activity coming up in

498
00:20:16,630 --> 00:19:56,320
just over 10 seconds shutdown and dragon

499
00:20:21,110 --> 00:20:18,630
and you can hear some really loud

500
00:20:23,669 --> 00:20:21,120
cheering in the room

501
00:20:25,669 --> 00:20:23,679
okay you just saw a bright flash there

502
00:20:28,789 --> 00:20:25,679
it looks like

503
00:20:30,710 --> 00:20:28,799
maybe falcon 9 breaking up

504
00:20:33,029 --> 00:20:30,720
we've got some loud cheers on here in

505
00:20:35,350 --> 00:20:33,039
hawthorne the folks that just watched

506
00:20:37,270 --> 00:20:35,360
live the dragon separate the next

507
00:20:40,070 --> 00:20:37,280
milestone we have coming up at two

508
00:20:42,149 --> 00:20:40,080
minutes 25 seconds we're expecting to

509
00:20:43,830 --> 00:20:42,159
see the trunk jettison

510
00:20:45,590 --> 00:20:43,840
so that claw that connects the trunk to

511
00:20:47,750 --> 00:20:45,600
the capsule is going to separate

512
00:20:50,230 --> 00:20:47,760
allowing dragon to

513
00:20:55,190 --> 00:20:50,240

separate from the trunk

514
00:20:59,190 --> 00:20:56,950
and we do have the report loss of

515
00:21:07,029 --> 00:20:59,200
telemetry from falcon 9

516
00:21:10,470 --> 00:21:08,470
and there you just saw the trunk

517
00:21:12,549 --> 00:21:10,480
jettison again some

518
00:21:14,549 --> 00:21:12,559
really loud cheers here in hawthorne

519
00:21:15,350 --> 00:21:14,559
california this test is looking great so

520
00:21:17,190 --> 00:21:15,360
far

521
00:21:18,470 --> 00:21:17,200
nice view from the back of the dragon

522
00:21:20,070 --> 00:21:18,480
capsule

523
00:21:21,750 --> 00:21:20,080
we're also trying to see if we get the

524
00:21:24,789 --> 00:21:21,760
view there on the right hand side from

525
00:21:26,950 --> 00:21:24,799
the aircraft it's orbiting the area

526
00:21:29,110 --> 00:21:26,960
now the dragon control system is now

527
00:21:31,270 --> 00:21:29,120
going to be reorienting the capsule

528
00:21:33,510 --> 00:21:31,280
we're at a high altitude where the air

529
00:21:35,909 --> 00:21:33,520
dynamics are negligible so we're going

530
00:21:38,630 --> 00:21:35,919
to use the small draco thrusters on the

531
00:21:40,710 --> 00:21:38,640
dragon capsule to reorient it that gets

532
00:21:42,710 --> 00:21:40,720
it in a position with a heat shield down

533
00:21:44,630 --> 00:21:42,720
to re-enter the earth's atmosphere and

534
00:21:47,110 --> 00:21:44,640
then later to deploy the drogue

535
00:21:49,909 --> 00:21:47,120
parachutes

536
00:21:52,070 --> 00:21:49,919
now those drogue shoots we expect to get

537
00:21:54,549 --> 00:21:52,080
confirmation that those have deployed at

538
00:21:55,909 --> 00:21:54,559

t plus four minutes and 48 seconds so

539
00:22:00,310 --> 00:21:55,919
we've got just a little bit of breathing

540
00:22:05,110 --> 00:22:02,230
those parachutes are protected during

541
00:22:06,789 --> 00:22:05,120
ascent on orbit and re-entry by a panel

542
00:22:09,990 --> 00:22:06,799
that's up near the nose cone of the

543
00:22:13,750 --> 00:22:11,590
so we're going to jettison the panel

544
00:22:15,990 --> 00:22:13,760
then the mortars will fire to deploy

545
00:22:18,310 --> 00:22:16,000
those two drogue shoots and that's

546
00:22:36,070 --> 00:22:18,320
coming up in just over a minute at t

547
00:22:40,230 --> 00:22:37,990
now those drove shoots when we see those

548
00:22:43,110 --> 00:22:40,240
come out those will open and those will

549
00:22:45,590 --> 00:22:43,120
come out before the main parachutes that

550
00:22:47,909 --> 00:22:45,600
those drug parachutes are what we use to

551
00:22:54,149 --> 00:22:47,919
begin to decelerate the dragon capsule

552
00:22:57,990 --> 00:22:55,669
we understand we're getting into the

553
00:23:00,149 --> 00:22:58,000
drug deploy envelope on the dragon

554
00:23:01,990 --> 00:23:00,159
capsule

555
00:23:13,510 --> 00:23:02,000
we expect that will happen when dragon

556
00:23:26,630 --> 00:23:15,909
about 15 seconds to draw drogue shoot

557
00:23:32,630 --> 00:23:28,149
and there they are

558
00:23:38,390 --> 00:23:35,350
again some major cheering going on here

559
00:23:39,909 --> 00:23:38,400
as every stage of this test unfolds

560
00:23:42,149 --> 00:23:39,919
now we're going to be getting ready for

561
00:23:44,149 --> 00:23:42,159
the main shoots to deploy

562
00:23:46,549 --> 00:23:44,159
now main shoots will be coming up fairly

563
00:23:48,950 --> 00:23:46,559

quickly there are four main parachutes

564
00:23:51,990 --> 00:23:48,960
these are the newest mark iii parachutes

565
00:23:54,630 --> 00:23:52,000
they're each 116 feet in diameter we

566
00:23:57,269 --> 00:23:54,640
deploy them about two kilometers above

567
00:23:59,350 --> 00:23:57,279
sea level 6500 feet above the atlantic

568
00:24:01,669 --> 00:23:59,360
ocean we're getting good views from the

569
00:24:02,950 --> 00:24:01,679
dragon and the airplane showing the two

570
00:24:04,789 --> 00:24:02,960
drogue shoots

571
00:24:14,549 --> 00:24:04,799
now we're just waiting for the main

572
00:24:17,990 --> 00:24:16,230
and we have the view

573
00:24:20,710 --> 00:24:18,000
from a different camera dragon showing

574
00:24:22,950 --> 00:24:20,720
the four main parachutes

575
00:24:24,870 --> 00:24:22,960
now they are deployed in a reef

576
00:24:26,710 --> 00:24:24,880
condition that means we're keeping them

577
00:24:28,630 --> 00:24:26,720
fairly shut to avoid shocks and now

578
00:24:30,470 --> 00:24:28,640
we're slowly opening up the four

579
00:24:32,230 --> 00:24:30,480
parachutes

580
00:24:34,789 --> 00:24:32,240
great views coming off of the dragon

581
00:24:37,029 --> 00:24:34,799
camera on the left and we can also see

582
00:24:38,630 --> 00:24:37,039
four parachutes run the airplane on the

583
00:24:40,870 --> 00:24:38,640
right

584
00:24:42,549 --> 00:24:40,880
that is a really cool view

585
00:24:44,390 --> 00:24:42,559
nice view of the orange and white

586
00:24:46,470 --> 00:24:44,400
parachutes as they're opening up into

587
00:24:49,190 --> 00:24:46,480
the second position

588
00:24:51,269 --> 00:24:49,200

and then going to fully open

589
00:24:54,149 --> 00:24:51,279
from fully open we'll be descending

590
00:24:56,870 --> 00:24:54,159
about 20 to 25 feet per second down to

591
00:24:58,789 --> 00:24:56,880
the atlantic so from that 6 500 foot

592
00:25:01,190 --> 00:24:58,799
altitude it's going to take us a few

593
00:25:03,990 --> 00:25:01,200
minutes to splash down

594
00:25:04,870 --> 00:25:04,000
also right now now that the mains are

595
00:25:07,110 --> 00:25:04,880
out

596
00:25:09,190 --> 00:25:07,120
a sequence is performed on the dragon

597
00:25:11,430 --> 00:25:09,200
which will reorient the crew seats into

598
00:25:14,390 --> 00:25:11,440
a splashdown position give them a little

599
00:25:17,110 --> 00:25:14,400
better angle to take the slow bounce as

600
00:25:18,870 --> 00:25:17,120
we hit the ocean

601
00:25:20,789 --> 00:25:18,880
now marie i talked about

602
00:25:23,590 --> 00:25:20,799
the parachutes came out initially at a

603
00:25:25,669 --> 00:25:23,600
reef condition that's fairly standard

604
00:25:27,590 --> 00:25:25,679
they come out not fully open that way

605
00:25:29,750 --> 00:25:27,600
they're minimizing the shock on the

606
00:25:32,070 --> 00:25:29,760
parachutes we're also minimizing the

607
00:25:34,630 --> 00:25:32,080
shock on the capsule again we want to

608
00:25:35,990 --> 00:25:34,640
give a smooth ride to the crew

609
00:25:38,149 --> 00:25:36,000
as they are coming back through the

610
00:25:40,950 --> 00:25:38,159
earth's atmosphere right

611
00:25:43,350 --> 00:25:40,960
now the parachutes are located behind a

612
00:25:45,110 --> 00:25:43,360
door that's at the bottom of the capsule

613
00:25:47,190 --> 00:25:45,120

it's below the crew hatch

614
00:25:48,789 --> 00:25:47,200
so dragon commands the door to release

615
00:25:51,029 --> 00:25:48,799
and as you saw in the video the drug

616
00:25:53,669 --> 00:25:51,039
parachutes pull the door away and that

617
00:25:55,590 --> 00:25:53,679
pulls the four main parachutes out

618
00:25:57,750 --> 00:25:55,600
now these are the new mark iii

619
00:26:00,149 --> 00:25:57,760
parachutes we've completed here at

620
00:26:01,110 --> 00:26:00,159
spacex over 80 tests of that parachute

621
00:26:03,510 --> 00:26:01,120
system

622
00:26:05,510 --> 00:26:03,520
including 10 multi-parachute tests of

623
00:26:07,909 --> 00:26:05,520
this particular upgraded parachute

624
00:26:10,070 --> 00:26:07,919
design over the last few months to

625
00:26:11,510 --> 00:26:10,080
demonstrate that the design is ready for

626
00:26:13,590 --> 00:26:11,520
flight

627
00:26:15,669 --> 00:26:13,600
and we are about we're just inside two

628
00:26:18,230 --> 00:26:15,679
minutes of when we expect to see a

629
00:26:19,909 --> 00:26:18,240
splash down the recovery teams are

630
00:26:22,789 --> 00:26:19,919
already out there in the atlantic ocean

631
00:26:24,789 --> 00:26:22,799
standing by uh ready with fast

632
00:26:27,190 --> 00:26:24,799
boats to begin their initial approach to

633
00:26:28,950 --> 00:26:27,200
dragon again we mentioned this before

634
00:26:33,190 --> 00:26:28,960
but the recovery operation we expect to

635
00:26:39,269 --> 00:26:35,190
i've heard a call out we're below 500

636
00:26:44,230 --> 00:26:41,669
and we expect when dragon splashes down

637
00:26:52,310 --> 00:26:44,240
it's going to be roughly 32 kilometers

638
00:26:56,870 --> 00:26:54,149

again we're looking at a live view so

639
00:26:59,029 --> 00:26:56,880
far uh all things have appeared to go

640
00:27:00,789 --> 00:26:59,039
nominal for this test all things looking

641
00:27:02,549 --> 00:27:00,799
great so far we saw the four main

642
00:27:03,590 --> 00:27:02,559
parachutes deploy you're looking at them

643
00:27:05,029 --> 00:27:03,600
now

644
00:27:07,430 --> 00:27:05,039
fully open

645
00:27:15,430 --> 00:27:07,440
and we are coming up on about a minute

646
00:27:18,950 --> 00:27:16,950
i think we may have heard a call out of

647
00:27:33,430 --> 00:27:18,960
a hundred meters to go

648
00:27:37,430 --> 00:27:35,029
now those four parachutes are actually

649
00:27:38,710 --> 00:27:37,440
going to be released from the capsule

650
00:27:41,350 --> 00:27:38,720
after splashdown and they'll be

651
00:27:45,669 --> 00:27:41,360
recovered too

652
00:27:52,070 --> 00:27:49,830
down a little bit early in fact

653
00:27:53,909 --> 00:27:52,080
and there you can see the recovery boat

654
00:27:55,029 --> 00:27:53,919
beginning to approach

655
00:27:56,630 --> 00:27:55,039
instantly

656
00:27:58,470 --> 00:27:56,640
and i try to talk a little bit louder so

657
00:28:00,630 --> 00:27:58,480
you can hear me over the folks here this

658
00:28:01,750 --> 00:28:00,640
has been a really exciting thing to see

659
00:28:03,430 --> 00:28:01,760
because

660
00:28:04,630 --> 00:28:03,440
we had the weather

661
00:28:06,389 --> 00:28:04,640
we're really sure if the weather was

662
00:28:08,149 --> 00:28:06,399
going to cooperate um we're trying to

663
00:28:09,669 --> 00:28:08,159

weigh you know is it favorable for

664
00:28:11,110 --> 00:28:09,679
launch but also is it favorable for

665
00:28:13,269 --> 00:28:11,120
recovery because they really have to

666
00:28:15,110 --> 00:28:13,279
watch the height of those waves in order

667
00:28:17,029 --> 00:28:15,120
to do this operation

668
00:28:18,870 --> 00:28:17,039
that that fast boat is is just off

669
00:28:20,549 --> 00:28:18,880
screen now but there's four fast boats

670
00:28:22,950 --> 00:28:20,559
out there in the area to begin again

671
00:28:25,190 --> 00:28:22,960
that initial approach to dragon um the

672
00:28:27,350 --> 00:28:25,200
recovery operation from here takes about

673
00:28:29,590 --> 00:28:27,360
two hours but all in all this looks like

674
00:28:31,350 --> 00:28:29,600
a really great test yeah a lot of fun

675
00:28:32,950 --> 00:28:31,360
watching the dragon come down we had

676
00:28:34,070 --> 00:28:32,960
great views from the onboard camera in

677
00:28:36,549 --> 00:28:34,080
particular

678
00:28:39,110 --> 00:28:36,559
now i think this camera is from our go

679
00:28:41,029 --> 00:28:39,120
searcher recovery ship which is also the

680
00:28:43,110 --> 00:28:41,039
tender for the fast boats you saw one of

681
00:28:44,950 --> 00:28:43,120
them headed out there and you can also

682
00:28:46,710 --> 00:28:44,960
see it looks still a little choppy so

683
00:28:48,549 --> 00:28:46,720
you understand we were kind of on the

684
00:28:50,950 --> 00:28:48,559
edge of the weather conditions out in

685
00:28:53,510 --> 00:28:50,960
the splashdown area but they assessed

686
00:28:55,269 --> 00:28:53,520
the uh the boat data the buoy data

687
00:28:56,070 --> 00:28:55,279
looked at the forecast and said we were

688
00:28:57,830 --> 00:28:56,080

go

689
00:29:00,230 --> 00:28:57,840
and while we took two and a half hours

690
00:29:01,590 --> 00:29:00,240
to get here we finally got here and it

691
00:29:03,590 --> 00:29:01,600
was great

692
00:29:05,750 --> 00:29:03,600
and that's the summary for today it

693
00:29:08,149 --> 00:29:05,760
looks like right now a great test

694
00:29:10,389 --> 00:29:08,159
visually everything happened falcon 9

695
00:29:13,669 --> 00:29:10,399
you saw the liftoff we had kind of a

696
00:29:15,830 --> 00:29:13,679
long view from the camera dragon did

697
00:29:18,630 --> 00:29:15,840
shut down the nine merlin 1d engines and

698
00:29:20,310 --> 00:29:18,640
separate we did see the flash as the

699
00:29:23,110 --> 00:29:20,320
falcon 9

700
00:29:25,909 --> 00:29:23,120
came apart as predicted no surprise

701
00:29:27,830 --> 00:29:25,919
there dragon we saw a great view as it

702
00:29:30,389 --> 00:29:27,840
got to apogee it deployed the trunk

703
00:29:33,269 --> 00:29:30,399
separating it reoriented then the drug

704
00:29:35,029 --> 00:29:33,279
shoots came out the main shoots came out

705
00:29:37,510 --> 00:29:35,039
and then we just waited for that nice

706
00:29:38,950 --> 00:29:37,520
soft splashdown in the atlantic ocean

707
00:29:40,710 --> 00:29:38,960
and we saw and it looks like we just

708
00:29:42,070 --> 00:29:40,720
lost the view from out there on the ship

709
00:29:43,590 --> 00:29:42,080
but you couldn't really see much from

710
00:29:45,269 --> 00:29:43,600
that particular angle

711
00:29:46,710 --> 00:29:45,279
again that recovery operation is going

712
00:29:47,909 --> 00:29:46,720
to take a couple of hours so we're not

713
00:29:50,230 --> 00:29:47,919

going to stay on the air for the

714
00:29:53,110 --> 00:29:50,240
duration of that but we are going to be

715
00:29:55,669 --> 00:29:53,120
back for a news conference coming up at

716
00:29:57,269 --> 00:29:55,679
11 30 eastern time this morning that

717
00:30:00,149 --> 00:29:57,279
would be let me do the math real quick 8

718
00:30:02,630 --> 00:30:00,159
30 pacific time we're going to hear from

719
00:30:04,149 --> 00:30:02,640
nasa and spacex leaders about their

720
00:30:05,269 --> 00:30:04,159
initial thoughts on this test that you

721
00:30:07,269 --> 00:30:05,279
just saw

722
00:30:08,789 --> 00:30:07,279
of course everything looked fantastic

723
00:30:10,310 --> 00:30:08,799
but there's going to be a lot of data to

724
00:30:12,070 --> 00:30:10,320
dig into they're going to also collect

725
00:30:14,549 --> 00:30:12,080
those parachutes get a lot of data from

726
00:30:16,950 --> 00:30:14,559
that and then see what the next steps

727
00:30:18,389 --> 00:30:16,960
are on the path to demo 2 when of course

728
00:30:21,430 --> 00:30:18,399
we're going to be launching nasa

729
00:30:23,269 --> 00:30:21,440
astronauts bob benkin and doug hurley so

730
00:30:25,750 --> 00:30:23,279
stay tuned for that news conference it

731
00:30:27,990 --> 00:30:25,760
will be carried live on nasa tv if

732
00:30:29,990 --> 00:30:28,000
you're watching on the web just tune to

733
00:30:32,230 --> 00:30:30,000
nasa.gov forward slash live so you can

734
00:30:34,870 --> 00:30:32,240
see that coverage again that's 8 30

735
00:30:36,389 --> 00:30:34,880
pacific time 11 30 eastern thanks so